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# GENERAL INFORMATION

## Coal Mine Fatal Accident 2005-20



Operator:	Arjay Mining, Inc.
Mine:	Adkins Branch Mine No. 1A
Accident Date:	December 15, 2005
Classification:	Roof Fall
Location:	Dist. 4, McDowell County, West Virginia
Mine Type:	Underground Coal Mine

# ACCIDENT DESCRIPTION



At approximately 12:40 p.m. on Thursday, December 15, 2005, a 35-year old roof bolting machine operator with 11 years mining experience was fatally injured in a roof fall accident. The victim was preparing to install the first row of roof support in the first cut taken from a highwall for a new drift opening when the mine roof collapsed. In an effort to avoid the falling rock, the victim moved in by the machine's automated temporary roof support (ATRS) towards the face, where he was struck by the falling material.

# ROOT CAUSE ANALYSIS

Causal Factor: The operator did not adopt effective designs or procedures to ensure the stability of the highwall. Similarly, the operator's ground control plan did not include methods to control existing hazardous conditions or precautions to keep persons from being exposed to these ground hazards. The highwall was not developed in consolidated, competent rock for a height sufficient to insure stability above the mine openings. Some areas of the highwall had been developed in dirt, on a near vertical angle, and were not stable. A bench and a diversion ditch had been developed in dirt and unconsolidated material above the entries. The disturbed material from the ditch construction was left in place on the bank above the bench and highwall. Portions of the dirt bench had fallen to the floor of the mine bench.

Corrective Action: Arjay Mining, Inc., submitted a plan to safely remove all mining equipment from the mine site. Riverside Energy Company, LLC., current owner of the mine site, does not plan to pursue any further mining at this site and plans to reclaim it.

# ROOT CAUSE ANALYSIS

Causal Factor: The operator did not have effective policies or procedures in place to ensure adequate examinations were conducted to identify and correct hazardous conditions the mine foreman who was the preshift and on-shift examiner of the mine and work site, either did not recognize the hazardous conditions that were present during his examinations or choose to ignore them. From November 30, 2005, to December 9, 2005, as persons were performing maintenance work to the mining equipment on the mine bench, they were exposed to the dangerous highwall and ground conditions.

During the development of the four mine portals, from December 12, 2005 to December 15, 2005, the mine foreman performing examinations did not report the hazardous conditions that existed to persons while they were performing work at and near the unstable highwall. The hazardous conditions were not reported in the preshift/on-shift daily report record book.

Corrective Action: The hazardous conditions were discussed with the mine operator and mine foreman. The mine operator submitted a plan to safely remove all mining equipment from the mine site. Riverside Energy Company, LLC., current owner of the mine site, does not plan to pursue any further mining at this site and plans to reclaim the mine site.

# ROOT CAUSE ANALYSIS

Causal Factor: The operator exerted no administrative control to ensure compliance with the approved roof control plan. The mine owner and superintendent who directed work activities at the mine site, did not read the adopted roof control and ground control plans prior to the commencement of work. Unstable material was not removed from the highwall above intended mine openings and areas between openings where miners travel or are required to perform work. Substantially constructed canopies were not properly installed at all intended drift or slope openings before penetrating the coal seam, as required by the approved roof control plan.

Corrective Action: The mine operator submitted a plan to safely remove all mining equipment from the mine site. Riverside Energy Company, LLC, owner and permit holder of the mine site, does not plan to pursue any further mining at this site and plans to reclaim the mine site.

# ENFORCEMENT ACTIONS

**§104(d)(1) citation, No. 7247087** was issued to the initial mine operator, controlling land owner and permit holder, Riverside Energy Company, LLC, for a violation of 77.1000.

The mine operator did not establish and follow a ground control plan for the safe control of the highwall that was consistent with prudent engineering design and insured safe working condition. The highwall above the Lower War Eagle coal seam constructed for the development of four mine entries was not developed in consolidated, competent rock for a height sufficient to insure stability of the mine openings. Some areas of the highwall had been developed in dirt, on a near vertical angle, and were not stable. A bench and diversion ditch had been developed in dirt and unconsolidated material above the mine entries. The disturbed material from the ditch construction was left in place on the bank above the mine bench and highwall. The disturbed material was not stable. Portion of the dirt bench had fallen to the floor of the mine bench. This condition was one of several contributing factors to a fatal mining accident that occurred at the drift opening of the number one entry on December 15, 2005.

# ENFORCEMENT ACTIONS, Cont'd.

**§104(d)(1) citation, No. 7247046** was issued to the mine operator, Arjay Mining, Inc., for a violation of 77.1000.

The mine operator did not establish and follow a ground control plan for the safe control of the highwall at the mine that was consistent with prudent engineering design and insured safe working conditions. The highwall above the Lower War Eagle coal seam constructed to face-up for the development of four entries to be used as portals for an underground mine was not developed in consolidated, competent rock for a height sufficient to insure stability above the mine openings. Some areas of the highwall had been developed in dirt, on a near vertical angle, and were not stable. A bench and a diversion ditch had been developed in dirt and unconsolidated material above the entries. The disturbed material from the ditch construction was left in place on the bank above the bench and highwall. The material was not stable. Portions of the dirt bench had fallen to the pit floor. Openings existed between the edge of the highwall and the canopies. The ground control plan for the mine dated November 8, 2005, did not include any methods to be used to control the above-described conditions or precautions to be taken to keep persons from being exposed to these ground hazards.

# ENFORCEMENT ACTIONS, Cont'd.

**§104(d)(1) order, No. 724748** was issued to the mine operator, Arjay Mining, Inc., for a violation of 75.360(b)(3).

An inadequate preshift examination was performed at this mine site from December 12, 2005, through December 15, 2005. J. C. Woolridge, preshift examiner designated by the operator, failed to recognize the hazards that existed to persons performing work at and near the unstable highwall. No hazardous conditions were reported during the four-day period while the new mine openings were being created. Hazardous conditions existed during this time period to persons working under and near the toe of highwall. The highwall above the bench was not developed in consolidated, competent rock. Some areas of the highwall had been developed in dirt, on a near vertical angle, and were not stable. A bench and diversion ditch had been developed in dirt and unconsolidated material above the entries. The disturbed material from the ditch construction was left in place on the bank above the bench and highwall. The material was not stable. Portions of the dirt bench had fallen to the floor of the mine bench.

# ENFORCEMENT ACTIONS, Cont'd.

**§104(d)(1) order No. 724749** was issued to the mine operator, Arjay Mining, Inc., for a violation of 75.362(a).

An inadequate on-shift examination was performed at this mine site from December 12, 2005, through December 14, 2005. J. C. Woolridge, on-shift examiner designated by the operator, failed to recognize the hazards that existed to persons while performing work at and near the unstable highwall. No hazardous conditions were reported during the three days while the new mine openings were being created. Hazardous conditions existed to persons working under and near the toe of the highwall. The highwall above the bench was not developed in consolidated, competent rock. Some areas of the highwall had been developed in dirt, on a near vertical angle, and were not stable. A bench and diversion ditch had been developed in dirt and unconsolidated material was present above the mine entries. The disturbed material from the ditch construction was left in place on the bank above the bench and highwall. The material was not stable. Portions of the dirt bench had fallen to the floor of the mine bench.

# ENFORCEMENT ACTIONS, Cont'd.

**§104(d)(1) order, No. 7247050** was issued to the mine operator, Arjay Mining, Inc., for a violation of 75.220(a)(1).

The mine operator did not follow the approved roof control plan that was suitable to the prevailing geological conditions and the mining system to be used at this mine. The approved roof control plan required all unstable material to be removed from the highwall above intended mine openings and areas between openings where miners travel or are required to perform work. The highwall above the bench was not developed in consolidated, competent rock. Some areas of the highwall had been developed in dirt, on a near vertical angle, and were not stable. A bench and diversion ditch had been developed in dirt and unconsolidated material above the entries. The disturbed material from the ditch construction was left in place on the bank above the bench and highwall. The material was not stable. Portions of the dirt bench had fallen to the floor of the mine bench.

# ENFORCEMENT ACTIONS, Cont'd.

**§104(d)(1) order, No. 7247051** was issued to the mine operator, Arjay Mining, Inc., for a violation of 75.220(a)(1).

The Order stated, "The mine operator did not follow the roof control plan (dated December 8, 2005), approved by the District Manager, that was suitable to the prevailing geological conditions, and the mining system to be used at this mine. The approved roof control plan stated under the title 'General Safety Precautions To Be Taken', page 11, 'A 10 foot cut may be taken with a remote control continuous mining machine for the purpose of installing canopies under the edge of the highwall or portable canopies will be used to take the 10 foot cut. The canopy will be installed and secured from movement prior to installing roof supports. Substantially constructed canopies of steel, reinforced concrete, or equivalent shall be provided at all intended drift and slope openings prior to being used by workers to enter and exit the mine.' The canopies were not installed under the edge of the highwall. A several foot wide gap existed between the inby side of the canopy and the existing highwall in the #1, #2, and the #3 new mine openings that were created. The canopies were not secured from movement prior to installing roof supports in the newly created mine openings listed above. The canopies were not maintained in substantially constructed condition. These canopies were moved from another mine site to this mine site. The legs of the canopies were bent. This condition compromises the support strength of the canopies."

# BEST PRACTICES

- Develop highwalls to the depth necessary and "face-up" to provide competent roof strata for drift openings.
- Ensure that ground control plans and roof control plans are developed consistent with sound and prudent engineering principles.
- Examine the completed highwall for loose or unconsolidated material before beginning any underground development.
- Design and install canopies to provide maximum falling materials protection at drift openings.